POSITION INDICATOR, AND PRODUCTION METHOD THEREFOR

BACKGROUND

[0001] Technical Field

[0002] The present disclosure relates to a position pointer used for position pointing operations on a position detector, such as a touch panel display, and relates also to a manufacturing method thereof.

[0003] Description of the Related Art

[0004] Pen-type position pointers are known for operating capacitive position detectors. For example, the position pointer described in Patent Document 1 has an elastic member that is elastic and conductive and provided at a tip portion of a rod-shaped housing. Position pointing is conducted as a contact member comes in contact with a pointing input surface (touch panel). The elastic member is provided on the housing in an attachable and detachable manner. Therefore, if the contact member is worn, only the contact member can be replaced.

[0005] Further, Patent Document 2 discloses a position pointer (stylus) that has a pen tip structure the surface of whose base material is coated to provide a smooth pen tip.

PRIOR ART PATENT DOCUMENTS

[0006] Patent Document 1: Japanese Patent No. 4840891

[0007] Patent Document 2: U.S. Pat. No. 6,771,254

BRIEF SUMMARY

Technical Problem

[0008] Although the position pointer described in Patent Document 1 permits replacement of its contact member, the durability and operability of the contact member have not improved and should do so. On the other hand, the position pointer described in Patent Document 2 offers better durability and operability by coating of the surface of the pen tip. However, the pen tip coating wears out with its use, making the base material exposed and leading to poor ease of use. As a result, the durability should be improved further. In the meantime, although the surface of the hard and porous base material can be coated, it is difficult to coat, especially difficult to form a thick coating, on the surface of an elastic body. Further, coating is high in cost. Therefore, it is desired that the durability and operability should be improved in another way.

[0009] In light of the foregoing, it is an object of the present disclosure to provide a position pointer that offers improved durability and operability of its contact member through a simple configuration and a manufacturing method thereof.

Technical Solution

[0010] In order to solve the above problem, a position pointer according to the present disclosure is used for position pointing operations on a capacitive position detector. The position pointer includes a rod-shaped housing, a sleeve, a cap, a cloth, a support member, and a first fastening member. The sleeve is connected to a tip portion of the housing. The cap is made of an elastic material provided in such a manner as to protrude from the tip portion of the sleeve. The cloth covers the cap. The support member is provided inside the housing to support the cap. The first fastening member fastens the cloth to the support member. At least one of the cap and the cloth is conductive.

[0011] In the present disclosure, the tip surface of the cap, a contact member, is covered with a cloth. This keeps the cap out of direct contact with a pointing input surface of the position detector, thus providing improved durability of the cap. The cloth provides reduced frictional resistance, thus achieving smooth operability. Further, the first fastening member fastens the cloth by clamping. This makes it possible to change the position of a hem portion of the cloth, thus allowing for easy adjustment of wrinkle positions of the cloth and the hem portion length.

[0012] In the present disclosure, the first fastening member is preferably made of an elastic material. If an elastic material is used, the cloth can be readily fastened by clamping. In this case, the first fastening member is preferably an O-ring. This configuration allows for reliable fastening of the cloth with an extremely simple and inexpensive fastener and permits easy adjustment of wrinkles of the cloth and the hem portion length after fastening.

[0013] The position pointer according to the present disclosure preferably further includes a second fastening member that fastens the cloth hem portion to the support member. This configuration enables reliable fastening of the cloth. Further, spreading of the cloth hem portion can be kept to a minimum, thus providing a better look of the cloth-covered cap as a whole.

[0014] In particular, the second fastening member in the present disclosure should preferably fasten both the cloth hem portion and the first fastening member. This configuration allows for fastening of not only the cloth hem portion but also the first fastening member, thus ensuring more reliable fastening of the cloth.

[0015] In the present disclosure, the second fastening member is preferably a heat-shrinkable tube. This configuration brings the cloth hem portion into closer contact with the support member surface, thus providing an excellent look and permitting reliable fastening of the cloth.

[0016] In the present disclosure, the support member preferably includes a base member and a shaft member. The base member is attached to the housing. The shaft member is provided on the base member in an attachable and detachable manner. The cap is preferably attached to a tip portion of the shaft member. The first fastening member preferably fastens the cloth to the shaft member. If attached directly to the support member as is conventionally done, the cap can be detached from the support member for replacement. If the cap is covered with a cloth as in the present disclosure, it is difficult to detach only the cap from the support member for replacement. However, if the support member is divided into a base member and a shaft member, and the cloth is fastened to the shaft member as in a present embodiment, the cap covered with the cloth can be readily detached for replacement.

[0017] In the present disclosure, the shaft member preferably includes a head section, a neck section, a flange section, a body section, and a connection section. The head section is fitted to the cap. The neck section is provided at a rear end of the head section and smaller in diameter than the head section. The flange section is provided at a rear end of the neck section and larger in diameter than the head section. The body section is provided at a rear end of the flange section and smaller in diameter than the flange section. The connection section is provided at a rear end of